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Psychometric properties of three instruments to measure recovery

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Psychometric properties of three instruments to measure recovery

Background: The process of recovery is gaining more and more attention within health care for patients with severe mental illness. Therefore, instruments to measure recovery can be useful for clinical and research purposes.
Aims: This study evaluates the psychometric properties of three instruments pertaining to recovery for possible application in the Netherlands. The Recovery Attitude Questionnaire and the Recovery Knowledge Inventory were investigated among 210 mental health professionals, and the Recovery Promoting Relationship Scale was administered to 142 mental health consumers.
Methods: The factor structure, reliability and internal consistency were examined using the same analysis strategy. First, each questionnaire was submitted to a confirmatory factor analysis based on the factorial structure proposed by the original developers of the questionnaire. In case of a bad fit, an exploratory factor analysis was conducted. Based on factor analyses, subscales were formed for each questionnaire and the internal consistency (Cronbach's alpha) was assessed. In all three cases the final principal axes solution was obliquely rotated by means of the OBLIMIN rotation procedure.
Results: The originally proposed factor structure did not yield an acceptable fit in any of the Dutch samples. After analyses, three instruments are proposed that are suitable for research on recovery-oriented competencies and the recovery-promoting relationship for professionals working with people with serious mental illness in the Netherlands.
Conclusions: The results in this study may be a step forward and give a new impulse to stimulate research in mental health recovery.

Keywords: recovery scales, factor structure, internal consistency, validity.

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Introduction

Recovery in general, and from serious mental illness in particular, is frequently explored by mental health consumers/providers, researchers and policymakers. However, the recovery concept is applied in different ways, and there is ambiguity about the nature of the concept. The definition of recovery currently considered to be most appropriate is a function of *who* is defining it (e.g. mental health consumers or researchers) and for *what purpose* it is defined (1). Nowadays, many mental health organizations develop plans to adapt their system of care in accordance with recovery-oriented principles. The main question is how treatment can facilitate the recovery process, and how the relationship with the mental health consumer may impede or facilitate recovery (2, 3).

The issue of staff attitudes and skills has been the subject of several longitudinal studies (3–5). These studies show that specific staff skills and behaviour contribute to the process of recovery, including effective communication, providing hope, appropriate self-disclosure, and a mutual equal and respectful partnership in treatment. According to some, however, it is less clear how to ensure that staff members actually demonstrate the competencies that support recovery (1). It is also unclear whether it is possible to train these skills, and which factors are most important to train to ensure proper treatment or care with regard to recovery.

In view of the increasing importance of studying recovery and recovery-related competencies (6), it is essential to use psychometrically sound instruments to assess recovery-oriented competencies and the recovery-promoting

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relationship. Until now, no instruments are available in the Netherlands to measure these concepts. Based on a literature review and a study of the Compendium of Recovery Measures (7), three suitable instruments were selected to be evaluated: the Recovery Attitude Questionnaire (RAQ) (8), the Recovery Knowledge Inventory (RKI) (9) and the Recovery-Promoting Relationship Scale (RPRS) (10). These instruments were selected based on their applicability, reliability, validity and their suitability to evaluate a recovery-oriented training programme focused on knowledge and attitudes towards patient recovery.

The aims of the present study are to establish the psychometric properties of these (translated) instruments to address recovery-oriented competencies, and to revise these instruments for use in the Netherlands.

Subjects and methods

Professional-based sample

Of the 270 professionals invited to participate in this longitudinal study, 210 agreed. Their average age was 43.3 (range 20–60) years, and 74% of the sample was women. Their mean period of employment in the mental healthcare sector was 13.2 years, and their mean period of experience dealing specifically with long-term psychiatric disabilities was 11.3 years. The sample of professionals consisted of psychiatrists, psychologists, psychiatric nurses, day care professionals, care assistants and other professionals in close contact with clients. The aim of the educational programme was to create a culture change towards recovery in the whole organization. That is why other staff members, such as managers and secretaries working in different settings, were also included in the study. Table 1 presents an overview of the demographical characteristics of the study group.

Table 1 Demographical characteristics of the professional healthcare sample

	Total group n = 210	
	n	*%*
Female	157	74
Working discipline		
Psychiatrist/psychologists	6	3
Psychiatric nurse	117	56
Day care professional	32	15
Placement supporter	11	5
Case manager	10	5
Care assistant	10	5
Managers	12	6
Information not available	10	5
Setting of employment		
Clinical intensive care	39	19
Crisis intervention team	6	3
Sheltered and protected care	64	31
Ambulatory care	11	5
Day activity centre	42	20
Care: general[a]	28	13
Information not available	20	10

[a]Managers, secretaries, administrative employees, pastors.

Sample of mental health consumers

A total of 360 patients with long-term psychological/psychiatric problems treated at the Psychiatric Institute 'Carea' (Breda, the Netherlands) were approached by telephone or in person. The inclusion criteria were age over 18 years, adequate comprehension of the Dutch language and diagnosed with a long-term mental health diagnosis. There were no specific exclusion criteria.

A total of 360 patients with long-term psychological/psychiatric disorders from the mental healthcare organization 'Carea' were approached. A sample of 142 patients (response rate 39%) agreed to participate and provided written informed consent. The average age of the participants was 49.1 (range 18–78; SD 13.1) years and of the nonparticipants 50.6 (range 18–93; SD 17) years. For the participants, the mean number of years of treatment was 14.16 (SD 10.3) years. Table 2 presents the characteristics of the patients who participated and the patients who did not participate.

There was no significant difference between the two groups with respect to age ($t = -0.93$, df = 358, p = 0.35). To compare the two groups for differences on the psychiatric diagnosis (main diagnosis on Axis I and II) and

Table 2 Characteristics of the mental healthcare consumers

	Participants n (%)	*Nonparticipants n (%)*
Female	89 (63)	101 (46)
Psychiatric characteristics		
DSM IV-R classification Axis I		
Schizophrenia, psychotic disorders	46 (35)	91 (44)
Mood disorders	40 (31)	59 (29)
Anxiety disorders	8 (6)	15 (7)
Substance-related disorder	7 (5)	8 (2)
No diagnosis on axis I	4 (3)	5 (3)
Other (including ADHD and ASD)	25 (19)	30 (15)
DSM IV-R classification axis II		
Cluster A	4 (3)	14 (7)
Cluster B	20 (16)	29 (14)
Cluster C	17 (14)	21 (10)
NOS	23 (18)	44 (21)
Other	6 (3)	8 (4)
No diagnosis on axis II	42 (33)	78 (37)

gender, chi-square independence tests were performed. The only significant result was found for gender: $\chi^2 = 9, 22$ (df = 1, p = 0.002), whereby significantly more women than men agreed to participate. There were no significant differences between the two groups for Axis I ($\chi^2 = 7.115$, df = 6, p = 0.31) and Axis II ($\chi^2 = 5.620$ df = 6, p = 0.47) diagnoses. Therefore, we can conclude that, except for gender, no systematic differences existed between the participants and the nonparticipants.

Prior to the start of the study, the authors have approached the regional Medical Ethics Approval Committee for Mental Health Care Institutions (METIGG). According to the Medical Research Involving Human Subjects Act (WMO), the study did not require ethical approval.

Instruments

The instruments included in the present study are the RAQ (8), the RKI (9) and the RPRS (10). The three questionnaires were translated into Dutch using the backward–forward translation procedure (11). First, translations into Dutch were made by five English/Dutch bilinguals. Any obvious differences between the English and Dutch versions were then discussed with a native English speaker. This process produced a consensus version of Dutch items, which was subsequently translated back into English by two other native speakers. Differences between this English version and the original were discussed by a fourth English native speaker. The total process produced a pilot version of the three questionnaires.

The recovery attitude questionnaire. The RAQ is a Anglo-American self-report questionnaire for professionals (8). It was developed in Australia and designed to measure respondent's attitudes about the belief that people can recover from serious mental illnesses. According to the developers of the Recovery attitudes Questionnaire (8), the degree of adoption of recovery-oriented principles and practices by mental health professionals may be influenced by their attitude and hopefulness regarding the possibility of recovery. The developers believe that the attitude and hopefulness in assisting consumers with their individual recovery process can improve with training. Borkin et al. therefore developed the RAQ instrument to assess attitudes towards recovery-related outcomes such as empowerment, satisfaction with life, improved quality of life, increased opportunities and environmental impacts. To develop the scale, people with mental disorders, family members and professionals were surveyed. Originally, a 16-item instrument was developed. After a principal component analysis (PCA), the 16-item instrument was reduced to a 7-item scale. The RAQ items are rated on a 5-point Likert scale, ranging from 1 (strongly agree) through 5 (strongly disagree). The original version contains two subscales: the first one 'Recovery is difficult and needs faith' consists of four items and the second one 'Recovery is difficult and differs among people' of three items. The original reliability scores (Cronbach's alpha) for the two subscales were 0.65 and 0.64, respectively, and 0.70 for the total RAQ. Despite the relatively low internal consistency scores, reasons to select this instrument were its ease of administration, its brevity and the current lack of other validated questionnaires on attitudes towards recovery.

The recovery knowledge inventory. The original RKI is a Anglo-American self-report questionnaire for professionals (9). This instrument was developed as part of a state-wide initiative in Connecticut (USA) to make all behavioural health services more recovery oriented (12). It was developed to assess the nature of recovery-oriented care. Bedregal et al. were aware of the fact that the concept of recovery offers a different view of 'cure' within mental health care. The concept of recovery is traditionally associated with somatic diseases and how people can recover from a physical illness. Since the mid-1980s, however, a great deal is written about mental health recovery from another perspective. According to the developers of the RKI, persons who are recovering are often capable of identifying, choosing, pursuing personally meaningful goals and aspirations beyond or despite continuing to suffer the effect and side effects of mental illness (9). Recovery in this sense is not necessarily the same as the disappearance/absence of symptoms – it is not synonymous with 'cure'. The RKI was based on this new vision of recovery.

To measure providers' knowledge and attitudes towards this new vision, a 36-item instrument was firstly developed. After a PCA, the 36-item instrument was reduced to a 20-item scale. The RKI items are rated on a 5-point Likert scale, with answer categories ranging from 1 (strongly disagree) to 5 (strongly agree). The 20 items cover four domains, namely (i) roles and responsibility in recovery, (ii) nonlinearity of the recovery process, (iii) the roles of self-definition and peers in recovery and (iv) expectations regarding recovery. Cronbach's alpha for the four domains were 0.81, 0.70, 0.63 and 0.47, respectively. Owing to the lack of other instruments to measure staff knowledge/attitudes about recovery, and despite the poor original statistical results, we decided to re-investigate the psychometric properties of this scale.

The recovery-promoting relationship scale. The RPRS is a Anglo-American self-report questionnaire for patients (10). It was developed in Boston, USA and based on findings from an anonymous internet survey enquiring about attitudes, skills and techniques in relation to mental health. According to the developers of the RPRS (10), the theory behind recovery-oriented care is that the professional is able to influence recovery and the 'recovery journey' of the mental health consumers; they can impede and facilitate the process (13). Strong clinician–patient

relationships, relational continuity and a caring collaborative approach facilitate recovery from mental illness and improve quality of life (14). Russinova et al. (10) offer a conceptual hierarchical model of three components of mental health's providers' professional competence. In their 'pyramid model of recovery-promoting professional competence', three key components in the structure of mental health providers' professional competence were identified. First key component is the core interpersonal skills, such as the ability to maintain a therapeutic alliance with the mental health consumer. According to this model, the providers' core interpersonal skills constitute the basis for effective delivery of any intervention. The second key component is the intervention/discipline-specific competencies that are needed to the different modalities of services provide to persons with serious mental illnesses, for example case management and rehabilitation counselling. According to the authors, professionals have to be trained in these discipline-related interventions. Finally, the third component is the complex set of skills that specifically target the recovery process of clients with serious mental illnesses. These skills determine providers' ability to use different strategies that promote the mental health consumer's hopefulness, empowerment and sense of self-acceptance. According to the authors, without the use of recovery-promoting strategies, treatment would be less optimal. Figure 1 shows the conceptual hierarchical pyramid model of the three components of mental health's providers' recovery-promoting professional competence.

The developmental of the RPRS was based on the aforementioned pyramid model of recovery-promoting professional competence. The original RPRS is a 24-item scale that measures the generic components of mental health providers' recovery-promoting professional competence: (i) the core interpersonal skills and (ii) skills to utilize recovery-promoting strategies. For the latter component, three subcomponents of strategies representing the provider's skills to enhance the client's hopefulness, empowerment and self-acceptance are given. The RPRS items are rated on 4-point Likert scale ranging from 1 (strongly disagree) to four (strongly agree) and with five indicating not applicable. The original scale demonstrated a high level of internal consistency alpha of 0.95 for the total scale, good test and re-test reliability, and acceptable concurrent criterion validity (10).

Figure 1 The pyramid model of recovery-oriented professional competencies (10).

Procedure

Recruitment of the professional sample. All mental healthcare workers of Carea were asked to participate in a longitudinal educational programme about recovery, including an evaluation study on the effect of the educational programme. Carea stands for 'Care and reactivation department of serious mentally ill people of Breda in the Netherlands'. All participants were verbally informed by their managers, received an information brochure about the programme and gave informed consent before the study started. The educational programme was mandatory for all professionals. The manager of the department explicitly encouraged participation in this research. The questionnaires were sent by mail, and participants were asked to complete and return these questionnaires within 2 weeks.

Recruitment of the mental health consumers. A total of 360 patients with long-term psychological/psychiatric disorders from the Psychiatric Institute Carea were approached. Specifically, patients receiving long-term ambulatory or residential psychiatric care participated. Only participants aged 18 years and older and with a good understanding of the Dutch language were approached personally or by telephone (Table 2). A sample of 142 (i.e. 39% of the approached population) agreed to participate. The remaining 61% either felt unable to participate, or had no interest. Prior to participation, all participants were verbally informed by their caretaker(s), received written information about the programme and all provided informed consent.

Statistical analyses

For all questionnaires, the same analysis strategy was applied. First, each questionnaire was submitted to a confirmatory factor analysis (CFA) that was based on the factorial structure proposed by its original developers. CFA was carried out using the software package MPLUS Version 5.0 and SPSS 17 (SPSS Inc., Chicago, IL, USA) (15, 16). In these Dutch samples, the originally proposed factor structure did not yield an acceptable fit for any of the three questionnaires. In the next step, an exploratory factor analysis (EFA) was conducted using the appropriate procedures from SPSS 17. The number of factors to retain in a principal

axes factor solution was based on visual inspection of Cattell's scree plot and on the results of a parallel analysis, as recommended by Fabrigar et al. (17). All principal axes solutions were obliquely rotated by means of the OBLIMIN rotation procedure. Factor loadings larger than 0.30 in absolute value were considered salient. On the basis of the factor analyses, subscales were formed for each questionnaire and their reliability (in terms of Cronbach's alpha) was assessed. A value of 0.70 for alpha is usually considered the minimum for any scale. For the RKI and RAQ, the data of 203 valid cases of professionals were analysed, and for the RPRS, the data of 142 clients were analysed.

Results

The recovery attitude questionnaire

The two-factor solution reported by the original developers of the RAQ failed to provide an acceptable fit in the Dutch sample of professionals: $\chi^2 = 51.369$ (df = 13, p = 0.000), Tucker Lewis index (TLI) = 0.645, root mean square error of approximation (RMSEA) = 0.119 and standardized root mean residual (SRMR) = 0.064. Consequently, an EFA was carried out. Both the scree plot and the parallel analyses indicated a two-factor solution, but extracting this solution resulted in a Heywood case (communality of one of the variables exceeding 1) in which only one item (item 6: all people with serious mental illnesses can strive for recovery) saliently loaded on the second factor. Therefore, it was decided to retain the solution with one common factor. Table 3 lists the factor loadings of the seven items on the single common factor. As the factor loadings of the first two items were smaller than 0.3, the EFA was repeated by running the EFA procedure in M*plus* and checking the standard errors for the loadings. All factor loadings were proven to be significantly different from zero, and all items were included in a single scale. Cronbach's alpha for the scale consisting of the seven RAQ items was 0.61, which is rather low. Although the low value of the homogeneity index counter indicates the use of this scale as an individual diagnostic instrument, its rather heterogeneous composition does not preclude its use to study group differences and to assess changes over time.

Table 3 Factor loadings of the seven items of the Recovery Attitude Questionnaire (RAQ)-Dutch after exploratory factor analysis

Items	*Factor loading*
1. People in recovery sometimes have setbacks	0.24
2. To recover requires faith	0.25
3. Stigma associated with mental illness can slow down the recovery process	**0.37**
4. Recovery can occur even if symptoms of mental illness are present.	**0.59**
5. Recovering from mental illness is possible no matter you think may cause it	**0.65**
6. All people with serious mental illnesses can strive for recovery	**0.57**
7. People differ in the way they recover from a mental illness	**0.54**

The numbers in bold represent the salient factor loadings of the Dutch RAQ.

The recovery knowledge inventory

The original four-factor structure (proposed by the developers of the RKI) was tested in a CFA on the Dutch sample. The results show that this solution was not appropriate in this sample: $\chi^2 = 272.278$ (df = 164, p = 0.000), TLI = 0.75, RMSEA = 0.056 and SRMR = 0.075. The EFA indicated that the solution with three common factors should be retained. However, the three scales obtained by distributing the 20 RKI items according to their factor loadings, showed very low internal homogeneity. Moreover, the distribution of the 20 items over the three scales did not match prior expectations based on the item content and formulation, making a substantive interpretation of these results contrived. Therefore, it was decided to subject the RKI items to a PCA and to retain the 14 items with a large loading on the first component in a single scale, which could be interpreted as 'Knowledge about recovery' (e.g. item 15 'Recovery is characterized by a person making gradual steps forward without major steps back'). The Cronbach's alpha of the 14 items was 0.80. Table 4 presents the factor loadings of the 20 items of the RKI-Dutch after explorative factor analysis.

The correlation between the RAQ and the RKI scale scores was 0.20 (p = 0.004); this value is significant but low enough to show that both scales measure different constructs in the Dutch situation and have sufficient discriminatory validity.

The recovery–promoting relationship scale

As the developers of this questionnaire suggested a two-factor structure, a CFA with two factors was carried out with the factorial structure of the items as given by the original authors. In the Dutch sample of clients, this model yielded an unacceptably bad fit with $\chi^2 = 663.544$, (df = 251, p = 0.000), TLI = 0.722, RMSEA = 0.109 and SRMR = 0.085. Although a scree plot suggested a one-factor solution, the two-factor solution from the EFA was preferred on the basis of the parallel analysis. Table 5 presents the rotated two-factor solution.

Inspection of Table 5 reveals that, while 17 items have a salient factor loading on the first factor, only five items saliently load on the second factor. Based on these results, two scales (reflecting the two factors) were constructed by allotting an item to the scale for which its salient factor

Table 4 Factor loadings of the 20 items of the Recovery Knowledge Inventory (RKI)-Dutch after explorative factor analysis

Items	*Factor loading*
1. The concept of recovery is equally relevant to all phases of treatment	−0.095
2. People receiving psychiatric/substance abuse treatment are unlikely to be able to decide their own treatment and rehabilitation goals	**0.50**
3. All professionals should encourage clients to take risks in the pursuit of recovery	0.08
4. Symptom management in the first step towards recovery from mental illness/substance abuse	**0.49**
5. Not everyone is capable of actively participating in the recovery process	0.27
6. People with mental illness should not be burdened with the responsibilities in every-day live	**0.39**
7. Recovery in serious mental illness is achieved by following a prescribed set of procedures	**0.64**
8. The pursuit of hobbies and leisure activities is important for recovery	0.18
9. It is the responsibility of professionals to protect their clients against possible failures and disappointments	**0.42**
10. Only people who are clinically stable should be involved in making decisions about their care	**0.60**
11. Recovery is not as relevant for those who are actively psychotic or abusing substances	**0.53**
12. Defining who one is, apart from his/her illness/condition, is an essential component of recovery	0.13
13. It is often harmful to have high expectations for clients	**0.43**
14. There is little that professionals can do to help a person recover if he/she is not ready to accept his/her illness/condition or need for treatment	**0.53**
15. Recovery is characterized by a person making gradual steps forward without major steps back	**0.56**
16. Symptom reduction is an essential component of recovery	**0.52**
17. Expectations and hope for recovery should be adjusted according to the severity of person's illness/condition	**0.57**
18. The idea of recovery is most relevant for those people who have completed, or are close to completing active treatment	**0.54**
19. The more the person complies with the treatment, the more likely he/she is to recover	**0.55**
20. Other people who have a serious mental illness or are recovering from substance abuse can be as instrumental to a person's recovery as mental health professionals	−0.26

The numbers in bold represent the salient factor loadings on 14 items of the Dutch RKI.

loading was highest. Two items were not allotted to any scale because they did not load on any factor (e.g. item 23: My provider helps me develop ways to live with my psychiatric

Table 5 Factor loadings of the 24 items of the Recovery-Promoting Relationship Scale (RPRS)-Dutch after explorative factor analysis

Items	*Factor Loading F1*	*Factor Loading F2*
1. My provider helps me recognize my strengths	**0.53**	0.14
2. My provider tries to help me see the glass as 'half-full' instead of 'half-empty'	−0.04	**0.60**
3. My provider helps me put things in perspective	**0.73**	0.22
4. My provider helps me feel I can have a meaningful life	**0.80**	0.04
5. I have a trusting relationship with my provider	**0.79**	−0.05
6. My provider helps me not to feel ashamed about my psychiatric condition	0.05	**0.72**
7. My provider helps me recognize my limitations	−0.17	**0.87**
8. My provider helps me finding meaning in living with a psychiatric condition	0.11	**0.68**
9. My provider helps me learn how to stand up for myself	**0.51**	0.32
10. My provider accepts my down times	**0.75**	−0.08
11. My provider encourages me to take chances and try things	**0.82**	−0.01
12. My provider reminds me of my achievements	**0.77**	0.08
13. My provider understands me	**0.59**	−0.14
14. My provider tries to help me feel good about myself	0.18	**0.59**
15. My provider helps me learn from challenging experiences	**0.54**	0.29
16. My provider really listens to what I have to say	**0.40**	0.06
17. My provider cares for me as a person	**0.77**	−0.07
18. My provider treats me with respect	**0.48**	−0.09
19. My provider helps me feel hopeful about the future	**0.79**	0.02
20. My provider helps me build self-confidence	**0.70**	0.08
21. My provider sees me as a person and not just as a diagnosis	**0.53**	−0.02
22. My provider helps me develop ways to live with my psychiatric condition	0.40	0.42
23. My provider has helped me understand the nature of my psychiatric condition	0.33	0.40
24. My provider believes in me	**0.63**	0.05

The numbers in bold represent the salient factor loadings on factor 1 and factor 2 of the Dutch RPRS.

condition). The distribution of the items over the two factors does not completely agree with the original description given by the test developers. The Cronbach's alpha reliability coefficients for the two scales were 0.929 and 0.869, respectively. The correlation between the mean scale scores for both scales was 0.661. From a substantive point of view, the first scale (consisting of 17 items) represents the more recovery-related strategies (like hopefulness and empowerment), whereas the second scale of five items represents the provider's skills to enhance clients' self-acceptance (e.g. item 14: My provider helps me to feel good about myself).

Discussion

The aim of the present study was to evaluate the psychometric properties of three instruments pertaining to recovery. To determine the psychometric properties of these instruments, a CFA were conducted to test whether the original factor structure of the three scales could also be found in the Dutch samples. Unfortunately, in none of the three questionnaires did the originally proposed factor structure yield an acceptable fit. Therefore, EFA were applied, subscales were formed and the reliability of the new subscales was tested.

Results with the RAQ indicate that its homogeneity and reliability are rather unsatisfactory. Although the low value of the homogeneity index counter indicates the use of this scale as an individual diagnostic instrument, its rather heterogeneous composition does not preclude its use to study group differences and assess changes over time.

For the Dutch version of the RKI, the PCA identified only one dimension underlying the structure of the scale. This dimension consists of 14 items from the original instrument which means that, in the Dutch version, six items were removed. Concerning the RKI, it must be mentioned that the composition and formulation of the original items were rather complex; the items were often ambiguously formulated and were not easy to interpret. Nevertheless, a satisfactory alpha of 0.80 was found for the 14-item scale.

For the Dutch version of the RPRS, results show that the original factor structure for this instrument could not be replicated in the Dutch sample. A possible explanation for this is the homogeneity of our sample; all 142 of our respondents were clients compared with only 60% in the original sample. Moreover, compared with the original sample, our sample is also more homogeneous with regard to demographical and psychiatric characteristics, and all were receiving long-term psychiatric care. Thus, the Dutch RPRS is a reliable 22-item scale measuring general components of recovery-promoting professional competence of mental healthcare providers, with the two general components that were found. The questionnaire provides scores on the recovery-promoting strategy, self-acceptance and the degree of a given practitioner's core interpersonal skills. This indicates the professional capability to empower his/her client and his/her ability to provide hope, from the point of view of the client. The reliability coefficients for both factors in the Dutch sample were good, which is consistent with the high alphas found in the original scale.

There are four possible explanations for the differences in factor solutions between the original questionnaires and the Dutch versions. First, differences may arise because of the translation of the items. Problems were encountered in the translation process, for example some items were simply difficult to interpret. Similar problems were reported in a psychometric evaluation of the Herth Hope Index-Dutch version (18). Second, differences may arise because of cultural aspects. For example, the USA has a more multicultural society (our sample had only two persons with a non-Dutch background). Third, our study population was relatively homogeneous, whereas the results of the original studies were influenced by the heterogeneity of their samples. In the present study, it was decided to distinguish between a specific (homogeneous) sample of mental health consumers and a professional sample. Finally, differences may arise because of the way mental health care is organized in the Netherlands. For example, Dutch society is generally not familiar with consumer-run projects, specific recovery principles, managed care and working together with people who have experienced psychiatric problems themselves.

Conclusion

The present study contributes to the development of three instruments related to recovery to be used in the Netherlands. The psychometric properties of the translated instruments were established. These instruments are suitable for research on recovery-oriented competencies and the Recovery-Promoting Relationship for professionals working with people with serious mental illness.

Moreover, the three instruments are appropriate tools to examine different aspects of recovery, including knowledge on recovery and attitudes towards recovery among professionals, and to measure generic components of mental health providers' recovery-promoting professional competence.

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Author contributions

Greet Wilrycx MSc was first author and responsible for the data collection, the statistical analyses and the first draft of the manuscript. As co-authors, Prof. Chijs van Nieuwenhuizen PhD, Anneloes van de Broek PhD and Marcel

Croon PhD contributed by critically reviewing the paper and the statistical analyses.

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Ethical approval

The normal procedure has been followed. According to the medical ethics committee for mental health institutions in the Netherlands, it was decided that approval was not necessary. The study did not meet the criteria.

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